Ellerslie, and Ballingan Chapel. See Glen Darragh Circle, and then back to Douglas.

*Saturday*, 26.—Train at 9.30 a.m. to Castletown; arrive Castle Rushen 10.30. See Castle collection of antiquities, &c. Train 12.22 for Port Erin. Lunch 1 p.m. Visit Liverpool Marine Biological Station. Walk to Neolithic Circle on Meayll Hill, then to Cregneish (see chasms), then to Port St. Mary (see Oghams and standing stones). Train to Douglas.

*Monday*, 28.—Train at 9.35 a.m. to Ramsey. Stop at Sulby Glen at 10. 42. Climb Cronk Sumark (see ancient fort). Train to Ramsey, arriving at 1.10 p.m. After lunch visit Masonic Rooms (see casts of crosses, flint implements, &c.) Carriages to Laxey (see King Orry's grave). Electric railway to Baldrine (see ancient fort and "cloven stones"), Keeil Killane (lintel graves), then on to Douglas. The four Sections will dine together at the Sefton Hotel, Douglas, on Monday evening.

SECTION II.—GEOLOGISTS.

Leaders: Prof. W. Boyd Dawkins, G. W. Lamplugh.

*Thursday*, 24.—Reception at Government House, &c., as before. Headquarters at Douglas.

*Friday*, 25.—Train at 9 30 to Castletown, walk to Castle Rushden, and then on to Stack of Scarlet, and thence to Poyllvaaish (see carboniferous limestones and contemporaneous volcanic series). Meet carriages at Poyllvaaish, lunch at George Hotel, Castletown, and drive to Langness (see base of carboniferous rocks and Skiddaw slates), and then on to railway station at Ballasalla. Train to Douglas.

*Saturday*, 26.—Electric Railway at 9.30 a.m. to Laxey, and on to Snaefell. (General view of island, and metamorphism of Skiddaw slates). Meet carriages near the Hut, and drive to Tholt-y-Will. Lunch 1 p.m., drive down the Glen, stopping at various points (see crush-conglomerates of Skiddaw rocks, &c.) on the way to Ramsey. Steamer at 6 p.m. back to Douglas.

*Monday*, 28.—Carriages at 9.30 a.m. for Crosby, Rockmount (see intrusive dykes in Skiddaws), Lhoob-y-Reeast, Peel (see red sandstones, &c.). After lunch see Peel Castle, &c. Drive to Foxdale (see lead mines and granite outcrop), and then on to Douglas. Final dinner with the other Sections.

SECTION III.—ZOOLOGISTS.

Leaders: Prof. W. A. Herdman, I. C. Thompson.

*Thursday*, 24.—Reception at Government House, &c., as before. Train at 5.10 p.m. for Port Erin.

*Friday*, 25.—If the weather is suitable, the day will be spent in dredging, &c., from a steamer, probably to the west of the Isle of Man. If dredging is impossible there is shore collecting, tow-netting in the bay, and work in the Biological Station to fall back upon.

*Saturday*, 26.—Train at 10.40 to Castletown (see Castle Rushen). Return to Port Erin. Lunch at Bellevue Hotel. Take Section I. over Biological Station. Walk with Sections I. and IV. to Neolithic Circle on Meayll Hill. See Cregneish, chasms, &c., and return to Port Erin.

*Monday*, 28.—If weather is suitable take steamer to Ramsey, dredging on the way along the east side of Island. Lunch at Ramsey, 1 p.m. (If time permits, join Section I. in seeing collection at Masonic Rooms.) Dredge from steamer on way back to Douglas. Final dinner, and stay night at Douglas.

SECTION IV.—BOTANISTS.

Leaders: Prof. F. E. Weiss, Rev. S. A. P. Kermode.

*Thursday*, 24.—Reception at Government House, &c., as before. See Mr. Okell's garden and collection of Veronicas. Train at 5.10 (with III.) to Port Erin.

*Friday*, 25.—Carriages 9.30; drive by "Round Table" to Peel over the mountains. Lunch (with I.); see Castle, &c. Carriages to Foxdale, Malew, and back to Port Erin.

*Saturday*, 26.—Train (or walk, by shore) to Castletown. See Castle Rushen (with I. and III.). Train to Port Erin. Lunch (with I. and III.). Visit Biological Station and Port Erin Shore. Walk with I. and III. to Neolithic Circle on Meayll Hill, on to chasms, and back to Port Erin. There is good shore-collecting at Port Erin, at Port St. Mary, and at various intermediate points.

*Monday*, 28.—Train to Douglas; carriages to Laxey. Electric railway to Snaefell. Meet carriages near Hut; drive to Tholt-y-Will. Lunch 1 p.m. Drive down Glen and through Curraghs (marsh plants) to Ballamooar, Jurby (gardens, conifers, &c.), back through Curraghs to Ballaugh railway station. Train to Douglas. Final dinner, and stay night at Douglas.

Some changes are taking place in the list of foreign guests. A few of those who had accepted, find themselves unable to be present; but others who were not expected, or were doubtful, are now coming, including some foreign Professors of medicine, surgery, and allied medical subjects—no doubt out of compliment to the President-elect. The local medical men are organising various arrangements in honour of Sir Joseph Lister.

The Local Secretaries hope to secure Dr. Nansen's presence at the meeting. Before he sailed in the *Fram*, Nansen promised a Liverpool shipowner that he would visit him immediately on his return. He has now been reminded of that promise by telegram to Vardö.

It is becoming possible now to forecast to a considerable extent the scientific work which will be brought before this meeting of the Association, and in a further article next week we shall give a sketch of what will probably be the leading features of the various Sections.

W. A. HERDMAN.

## *COUNTY COUNCILS AND AGRICULTURE.*

THE allocation of public money to County Councils under the Local Taxation (Customs and Excise) Act of 1890 has now been in progress for half-a-dozen years. It was understood, though not expressly stipulated, that this money—the proceeds of an additional tax placed upon beer and spirits—should be devoted to the furtherance of technical education, and in the case of most County Councils it is to this object that the money has been applied. With reference to the permanency of the grant, the Duke of Devonshire (then Lord Hartington), addressing a meeting on December 5, 1890, said: "The best way of securing the fund will be to see that it is used for the purpose for which it was originally granted." And on the previous day, in the House of Commons, Mr. Goschen, at that time Chancellor of the Exchequer, said, in reply to a question: "If County Councils set themselves heartily to work to utilise the grants for important educational purposes, it will probably be difficult for any Minister to persuade Parliament to divert them." Excepting in a few cases where some or all of the grant has been applied to the relief of local rates, the County Councils appear to have loyally adhered to the understanding in accordance with which the money was originally directed into the new channel. The particular form of "important educational purposes" to which aid has been extended has necessarily varied somewhat in different localities, but, on account of the universal pursuit of the industry, agriculture perhaps has received more wide-spread recognition than any other art. The result has been the establishment within recent years of new agricultural colleges and schools, or the grafting of an agricultural department upon educational institutions already in existence. To a third group may be assigned



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various organisations which were in operation before the days of County Councils, but to which these latter have felt it right to hold out a helping hand. To what extent these different bodies are carrying out the objects for which they were instituted, is a fair subject of inquiry.

In most cases evidence is forthcoming of two main lines of activity, which, though independent of each other, are nevertheless related. These are on the one hand the instruction of students, and on the other the prosecution of investigations which should prove of interest not only to students but to all who are engaged in agricultural pursuits. Under the first head there is not much room for novelty. The model which was set up when, more than fifty years ago, a small group of far-seeing men—the Prince Consort amongst them—unfurled upon the Cotswold Hills the banner of agricultural education, is the one that, consciously or unconsciously, has always been followed. In all attempts that have since been made to formulate a fairly comprehensive scheme of agricultural tuition, the germs of every system will be found in the curriculum of the Royal Agricultural College, Cirencester. Nevertheless, this curriculum, far from being stereotyped or crystallised, is and always has been susceptible of such modifications as are called for by the exigencies of the times, as was exemplified by the manner in which the dairying industry, at the time of its renaissance, received prompt and adequate recognition. Its permanence, indeed, is due to its elasticity. Many hundreds, perhaps thousands, of students are now receiving in agriculture a good type of technical instruction which a score of years ago could be obtained nowhere else in this country than at Cirencester.

It is to that section of their work in which institutions fostered by County Councils are brought more immediately under the notice of the general public that criticism may be usefully directed. Most agricultural colleges and schools, and probably the agricultural departments of all university colleges which possess them, are engaged in pursuits which may or may not deserve to be dignified by the name of research. In the majority of cases, however, the work is nothing else than demonstration, and it usually takes the form of differential manuring experiments upon various crops in the field. Periodically, reports are published embodying the results. These are noticed in our columns, but we are not often able to point to any work that rises above the level of demonstration, of the same type as the example fields and example crops that are conducted under Government auspices in France. In most instances the results can approximately be stated beforehand. If it is necessary to demonstrate in a number of localities the effects of nitrogen according as it is applied to a crop in the form of nitrate of soda or of sulphate of ammonia, or to show the different effects of basic slag, bones, and superphosphate of lime as sources of phosphorus—to cite these as simple illustrations—then, no doubt, these many-duplicated field experiments serve their purpose. Nevertheless, they do not alter the fact that the best experimental farm—the one that is capable of teaching the most useful lessons—is a farmer's own occupation, for in this case the conditions are known to him with, perhaps, a minuteness of detail that cannot be approached in connection with field experiments in which he is hardly likely to take more than a sort of academical interest. What have the County Councils, through the medium of the institutions to whose support they contribute, yet done towards teaching the farmer to read aright the lessons which he may learn all the year round in his own fields, and the capacity to make correct inferences from which would be invaluable to him?

It is noteworthy that, with hardly an exception, the work of these institutions is restricted to crops and cropping. The fascinating problems associated with animal nutrition have mostly failed to attract them. Perhaps these are considered too difficult, possibly they may be thought too costly. In one or two cases the domain of bacteriology has been invaded, particularly in connection with dairying. A good illustration of the general character of the work undertaken is provided in the current report of the Board of Agriculture on the distribution of grants for agricultural education. In the financial year 1894-95 the Board distributed the sum of £7400 amongst seventeen institutions. It is not very obvious why these institutions and none others were selected, but it is a fact that all, or most of them, are also in receipt of County Council grants. It is stated that, in at least twenty counties of England and Wales, "demonstrations by experimental work in field plots are now undertaken," and *résumés* are given of the work recently done at the institutions which have received grants from the Board.

Altogether it would seem that, whilst the institutions under notice are undoubtedly useful as instruments of agricultural education, their value in other directions might be increased were their labour less diffuse. The boast that a given centre has more fields of demonstration scattered over a larger number of counties, and that its officials have travelled a greater aggregate of miles in the discharge of their duties, than in the case of any other centre, may be gratifying to local pride, but it is not a high object to aim at. There may possibly exist an ambition to make a centre a second Rothamsted, but it must be remembered that it is the "continued effort along a given line," associated with "the limited number of lines undertaken, although the work extends over fifty years," that has secured for Rothamsted its unique reputation. The warning has already gone forth officially to the United States agricultural experiment stations, that concentration of energy upon a few specific objects of investigation is preferable to the diffuse expenditure of force which has hitherto characterised many of the stations. There is no coordinated effort amongst our own institutions; each goes its own way, independent of, and practically ignoring, the others—unless, perchance, there be rivalry. A connecting link, possibly a controlling influence, is needed. Youth is on their side, and they have furnished many proofs that they are not lacking in energy. Quality rather than quantity, however, is the goal at which they should aim in the future conduct of their work.

## THE ECLIPSE OF THE SUN.

THE bad news which we published last week regarding the almost general failure of the eclipse observations is tempered by the telegrams which have since been received regarding the weather in Novaya Zemlya and in Siberia.

A telegram from Hammerfest reports success at the former station, though details are yet lacking. As this expedition was organised at the last moment, very little has been said about the instruments to be employed. It may be stated, therefore, that Sir G. Baden-Powell took with him Dr. Stone, of the Radcliffe Observatory, who proposed to make spectroscopic observations, and Mr. Shackleton, one of the computers employed at the Solar Physics Observatory, South Kensington, who observed the eclipse of 1893 in Brazil. Mr. Shackleton was provided by Mr. Norman Lockyer with a powerful prismatic camera with two 3-inch prisms of 60°, and careful testings gave great hopes of its performance.

It was, therefore, to be employed chiefly in investigating the special spectrum of the corona found on the photographs of 1893. As a subsidiary instrument, a telescope of four inches aperture and somewhat long focal length was also arranged to photograph the corona. Both instruments were to be fed with light by a Foucault siderostat.



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